

IMPROVED RANGE RESISTORS FOR AC-DC TRANSFER MEASUREMENTS

ABSTRACT OF THE DISCLOSURE

A range resistor, for deployment with a low voltage AC measuring instrument as a voltage range multiplying attenuator, provides increased accuracy in the measurement of high AC voltages at frequencies up to 1 MHz, particularly when large attenuation ratios are needed. Passive guarding and neutralizing structure permits the use of higher value resistors for a given frequency response accuracy and an intrinsically lower input capacitance than is obtainable with conventional structure. Very low drift and voltage coefficients are achieved by a coordinated thermal design. Applications include high accuracy voltage measurement in the 10 to 1000 volt range with low input signal current when attenuation is resistively scaled to match the operating input level of the measuring device to be used, typically a thermocouple and/or digital or analog precision voltmeter.